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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/977,410	10/15/2001	Lyndon W. Graham	SEM4492P0102US	4366

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EXAMINER

VALENTINE, DONALD R

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 02/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/977,410

Applicant(s)

GRAHAM ET AL.

Examiner

Donald R. Valentine

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 35-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 35 is/are allowed.
- 6) ☒ Claim(s) 36-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida in view of Lytle.

Ishida teach the invention except for a pump means, means for applying current to the pump during electroplating. (See col. 2, lines 29-45; and col. 3, lines 36-40 and lines 54-55). These passages of the reference suggest that pressure is exerted on the plating fluid suggesting the presence of a pump and that the diameter of the counter electrode is smaller than the diameter of the wafer holder (applicants recited feature). Ishida describes a "cup shaped plating bath" which is being construed by the examiner to be a "reservoir".

Lytle shows apparatus, which, like Ishida, processes a horizontally arranged workpiece. Lytle further demonstrates means for applying current to the "counter electrode and the workpiece holder". Lytle also shows a pump which pumps electrolyte from a reservoir towards the workpiece. See col. 2, lines 20-36.

It would be considered within the skill of the art to provide means for applying current to the electrode terminals of Ishida and to provide a pump with current to cause the pump to function causing pressurized plating fluid flow toward the workpiece in Ishida because such an adaptation would be necessary to facilitate the initiation of both electroplating on the workpiece and the forceful projection of an electrolyte against the workpiece.

The above rejection is repeated as set forth in the last Office action. Applicants' response to the last Office action appears to suggest that applicants agree with the examiner's position.

3. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pearson.

Pearson teaches apparatus which includes a means for holding a workpiece above a "reservoir" (indicated as a trough 17) and includes a pump system and a power source to electrodes (counter electrodes) and the workpiece. See Figure 1. The apparatus of Pearson does not function to electroplate a wafer, however, statements of intended use are not given weight when determining the patentability of apparatus claims. The reference describes a sparger, which has holes in it at a position between the workpiece and a counter electrode(s) (items 48 and 49). The presence

of the sparger apparently is intended to insure uniform flow of electrolyte for plating on the workpiece undersurface. (See (See col. 2, lines 42-59; col. 3, lines 55-68; and col. 4, lines 1-11. The sparger has many plate(s) with holes and is not a "disk", however, in the absence of any unexpected results, the shape of the plate(s) would be modifiable by the skilled artisan as a matter of design choice. The sparger is being construed as being a "distributor" because it appears to function in the manner as is claimed by applicants.

It would be considered within the skill of the art to provide "distributor means" having holes for arranged to provide uniform electrolyte flow because the reference provides a structure which performs a function apparently as is desired by applicants in apparatus which have elements in combination similar to those of applicants'.

Allowable Subject Matter

4. Claim 35 is allowed.
5. The following is a statement of reasons for the indication of allowable subject matter: The references of record do not show or suggest apparatus with a reservoir for electrolyte, a holder for holding a wafer above the reservoir, a counter-electrode in the reservoir, means for passing current

between the counter-electrode and the wafer in the holder, a pump for pumping electrolyte from the reservoir against the wafer in the holder and a non-conducting porous separator between the holder and the counter-electrode.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald R. Valentine whose

telephone number is 571-272-1250. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Donald R. Valentine
Primary Examiner
Art Unit 1742

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February 2, 2004